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10/785,458	02/23/2004	Hans Henrik Bostrom	CISCP586/364087	8563

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EXAMINER	
NG, CHRISTINE Y	
ART UNIT	**PAPER NUMBER**
2416	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/785,458	BOSTROM ET AL.	
	Examiner	Art Unit	
	CHRISTINE NG	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2008*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 15 September 2008 have been fully considered but they are not persuasive.

Referring to the argument that Alexander Jr. et al do not disclose tunnels (page 7, line 23 to page 8, line 27): The newly added limitation to independent claims 1, 15 and 29 require a switch connecting two networks via the link aggregation of tunnels. Guruprasad discloses in Figure 1 network wherein a source switch 800 is connected to a destination switch 801 through link aggregations of tunnels. Tunnels can be combined when they are going towards same destination. Refer to Column 7, lines 8-22; and Column 15, lines 19-30. It would be obvious to use tunneling in the system of Alexander Jr. et al to make the network more flexible by supporting different protocols since tunneling encapsulates packets with a different protocol so they can be transmitted over to the network operating under that different protocol. Furthermore, Alexander Jr. et al disclose in Figure 1 connecting two computers (devices 26, 28 or 30 to devices 32, 34 or 36) in a computer network via hosts 22 and 24, which can be switches. Refer to Column 3, line 37 to Column 4, line 9.

Referring to the argument that Alexander Jr. et al concerns activity within one network node (page 8, line 28 to page 9, line 6): Alexander Jr. et al disclose in Figure 4 a switch that can be the host 22 and 24 shown in Figure 1. Packets coming into port 402 are transmitted out of link aggregation 403 for transmission to the destination switch. Therefore, the system of Alexander Jr. et al does not concern activity within one

network node since packets are transmitted between switches via link aggregation 403. Refer to Column 4, line 24 to Column 5, line 18.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 6-8, 12-15, 20-22 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,501,749 to Alexander Jr. et al in view of U.S. Patent No. 7,002,927 to Guruprasad.

Referring to claims 1, 15 and 29, Alexander Jr. et al disclose in Figures 1 and 2 a method of providing data transmission across a computer network, the method comprising:

Creating a link aggregation comprising plurality of *links* (link aggregation 20) across a computer network to connect a first computer (devices 26, 28 or 30) to a second computer (devices 32, 34 or 36), the plurality of *links* including a *link* for each link (40) in the link aggregation, said link aggregation capable of simultaneously supporting a plurality of transmission protocols (k links in link aggregation 20 may be utilized with a plurality of networking protocols; Column 4, lines 6-9). Refer to Column 3, line 37 to Column 4, line 9.

Connecting a first computer (devices 26, 28 or 30) at a first site with a second computer (devices 32, 34 or 36) at a second site; the connection made via the computer network (using hosts 22 and 24). Refer to Column 3, line 37 to Column 4, line 9.

Transmitting packets end-to-end from the first computer to the second computer in a manner characterized that the computer network transmits data from the first computer to the second computer without terminating a connection from the first computer to the second computer at a switch (host 22 or 24 may be each a switch; Column 3, line 54) at an inbound edge of the computer network, the packets conforming to protocols in the plurality of transmission. As shown in Figure 4, a connection is maintained at the inbound edge of the computer network since data frames enter through port 402 and are transmitted through link aggregation 403. The connection at the inbound edge is maintained because link aggregation 403 must determine which link 408-411 to send data through. Refer to Column 4, line 24 to Column 5, line 18.

Alexander Jr. et al do not disclose that the *links* are tunnels.

Guruprasad discloses in Figure 1 network wherein a source switch 800 is connected to a destination switch 801 through link aggregations of tunnels. Tunnels can be combined when they are going towards same destination. Refer to Column 7, lines 8-22; and Column 15, lines 19-30. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the *links* are tunnels. One would have been motivated to do so to make the network more flexible by supporting different protocols since tunneling encapsulates packets with a different

protocol so they can be transmitted over to the network operating under that different protocol.

Referring to claims 6 and 20, Alexander Jr. et al disclose in Figures 4 and 5 monitoring the computer network to detect multipoint protocol tunneling. Link aggregation 403 in switch 401 prevents multi-destination data frames from being sent on the wrong links 408-411 by determining whether the address of the data frame matches the physical interface of the link. Refer to Column 4, line 24 to Column 5, line 18. The claim does not specifically define multipoint protocol tunneling, so this process reads on multipoint protocol tunneling, since the process determines which links to send multi-destination data frames through.

Referring to claims 7 and 21, Alexander Jr. et al disclose in Figures 4 and 5 wherein the monitoring is performed on a per-interface basis (per link aggregation 403). The link aggregation 403 determines which link 408-411 to send data through depending on the address of the data frame. Refer to Column 4, line 46 to Column 5, line 18.

Referring to claims 8 and 22, Alexander Jr. et al disclose in Figures 4 and 5 wherein the monitoring is performed by examining a source media access control address on a transmitted protocol data unit. Refer to Column 2, lines 30-40; and Column 4, lines 59-67.

Referring to claims 12 and 26, Alexander Jr. et al disclose in Figures 4 and 5 wherein a report (result of trunk group distribution algorithm) is generated upon detection of multipoint protocol tunneling. The link aggregation 403 runs a trunk group

distribution algorithm to determine through which link 408-411 to send data through. Refer to Column 4, line 46 to Column 5, line 18.

Referring to claims 13 and 27, Alexander Jr. et al disclose in Figures 4 and 5 wherein multipoint protocol tunneling is performed on a per-protocol basis. The links in a link aggregation may be utilized with a plurality of networking protocols (Column 4, lines 6-9). Therefore, if each link in the link aggregation 403 utilizes a different protocol, multipoint protocol tunneling is performed on a per-protocol basis, since the link aggregation 403 determines which link 408-411 to send data through depending on the address of the data frame. Refer to Column 4, line 46 to Column 5, line 18.

Referring to claims 14 and 28, Alexander Jr. et al disclose in Figures 4 and 5 wherein multipoint protocol tunneling is performed on a per-port basis (per link 408-411 in link aggregation 403). The link aggregation 403 determines which link 408-411 to send data through depending on the address of the data frame. Refer to Column 4, line 46 to Column 5, line 18.

4. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,501,749 to Alexander Jr. et al in view of U.S. Patent No. 7,002,927 to Guruprasad, and in further view of U.S. Patent No. 6,910,149 to Perloff et al.

Alexander Jr. et al do not disclose wherein the plurality of transmission protocols comprises LACP protocol, and packets are transmitted in accordance with the LACP protocol to perform Ethernet loadsharing across multiple links.

Perloff et al disclose that the LACP protocol defines standards on how links in link aggregation can load share and load balance, and how to provide for automatic

redundancy in case of link failure. Refer to Column 1, line 55 to Column 2, line 41; and Column 5, lines 42-67. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the plurality of transmission protocols comprises LACP protocol, and packets are transmitted in accordance with the LACP protocol to perform Ethernet loadsharing across multiple links. One would have been motivated to do so to provide a protocol to control the load sharing and load balancing of link in link aggregation.

5. Claims 3, 4 17 and 18 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 6,501,749 to Alexander Jr. et al in view of U.S. Patent No. 7,002,927 to Guruprasad, and in further view of U.S. Patent No. 7,061,875 to Portolani et al.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing

that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Referring to claims 3 and 17, Alexander Jr. et al do not disclose wherein the plurality of transmission protocols comprises PAgP protocol, and packets are transmitted in accordance with the PAgP protocol to perform Ethernet loadsharing across multiple links.

Portolani et al disclose that the PAgP protocol aggregates a plurality of physical ports into a single, logical aggregation port. This allows for load sharing as different ports can share the transmission and reception of data since they are one logical port. Refer to Column 12, lines 13-32. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the plurality of transmission protocols comprises PAgP protocol, and packets are transmitted in accordance with the PAgP protocol to perform Ethernet loadsharing across multiple links. One would have been motivated to do so to load balance data among different ports, which prevents congestion and overflow on one particular port.

Referring to claims 4 and 18, Alexander Jr. et al do not disclose wherein the plurality of transmission protocols comprises UDLD protocol, and packets are transmitted in accordance with the UDLD protocol to perform unidirectional link detection.

Portolani et al disclose that the UDLD protocol determines the physical status of a link by detecting the identities of neighbors and shutting down misconnected ports. UDLD prevents physical and logical unidirectional connections. Refer to Column 12

lines 33-46. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the plurality of transmission protocols comprises UDLD protocol, and packets are transmitted in accordance with the UDLD protocol to perform unidirectional link detection. One would have been motivated to do so in order to detect unidirectional connections.

6. Claims 5 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,501,749 to Alexander Jr. et al in view of U.S. Patent No. 7,002,927 to Guruprasad, and in further view of U.S. Publication No. 2006/0067317 to Engstrand et al.

Alexander Jr. et al do not disclose wherein a unique ISP access VLAN is assigned to each connection between corresponding Etherchannel ports.

Engstrand et al disclose that each VLAN is assigned a VLAN identifier or VLAN tag for uniquely identifying the VLAN within a LAN. Also, a VLAN can be connected to an ISP. The same address of an ISP is used for a plurality of connections that are connected to that ISP. Refer to Sections 0002 and 0012. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein a unique ISP access VLAN is assigned to each connection between corresponding Etherchannel ports. One would have been motivated to do so to unique identify each connection.

7. Claims 9-11 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,501,749 to Alexander Jr. et al in view of U.S.

Patent No. 7,002,927 to Guruprasad, and in further view of U.S. Patent No. 5,081,621 to Sugimoto.

Referring to claims 9 and 23, Alexander Jr. et al disclose wherein the source media access control address is recorded as a multipoint protocol tunneling reference. Refer to the rejection of claims 6 and 20 and the rejection of claims 8 and 22.

However, Alexander Jr. et al do not disclose an aging timer is set to a minimum time that is longer than a longest expected transmission time for the transmitted protocol data unit.

Sugimoto discloses in Figure 3 a system with monitoring timers 14-1 to 14-4 which have a slightly longer timing than a transmission time in a maximum transmission route in the network for packets. Refer to Column 5, lines 7-10. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an aging timer is set to a minimum time that is longer than a longest expected transmission time for the transmitted protocol data unit. One would have been motivated to do so in order to set the timer to account for the data unit requiring the longest transmission time.

Referring to claims 10 and 24, Alexander Jr. et al do not disclose wherein, before expiration of the aging timer, all packets arriving with a source media access control address other than the reference are dropped.

Sugimoto discloses in Figure 3 a system with monitoring timers 14-1 to 14-4 which have a slightly longer timing than a transmission time in a maximum transmission route in the network for packets. Refer to Column 5, lines 7-10. Although Sugimoto do

not specifically disclose dropping packets with a different address before expiration of the timer, by setting the timers 14-1 to 14-4 to a time longer than the maximum transmission time, this allows the packet with the expected address to be received. All other packets with addresses other than the expected address can be dropped. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein, before expiration of the aging timer, all packets arriving with a source media access control address other than the reference are dropped. One would have been motivated to do so to allow time for particular packets to be received.

Referring to claims 11 and 25, Alexander Jr. et al do not disclose wherein, after expiration of the aging timer, the first packet arriving after expiration of the aging timer provides its source media access control address as the next multipoint protocol tunneling reference.

Sugimoto discloses in Figure 3 a system with monitoring timers 14-1 to 14-4 which have a slightly longer timing than a transmission time in a maximum transmission route in the network for packets. Refer to Column 5, lines 7-10. Although Sugimoto do not specifically disclose that the first packet arriving after expiration of the aging timer provides its source media access control address as the next multipoint protocol tunneling reference, by setting the timers 14-1 to 14-4 to a time longer than the maximum transmission time, this allows the packet with the expected address to be received. After the packet with the expected address is received, the system can await for a packet with a new address. Therefore, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to include wherein, after expiration of the aging timer, the first packet arriving after expiration of the aging timer provides its source media access control address as the next multipoint protocol tunneling reference. One would have been motivated to do so to allow time for particular packets to be received and then receive other packets.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE NG whose telephone number is (571)272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on (571) 272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C. Ng
November 24, 2008

/FIRMIN BACKER/
Supervisory Patent Examiner, Art Unit 2416